

Solving Absolute Value Equations

* Graph $y = \text{abs}(x)$

you can use your calculator to help -
 $\text{abs}(x) = \text{MATH} \Rightarrow (\text{NUM}) \Rightarrow 1$

	x	$y = \text{abs}(x) = x $
$(5,5)$	5	5
$(6,6)$	6	6
$(-2,2)$	-2	2

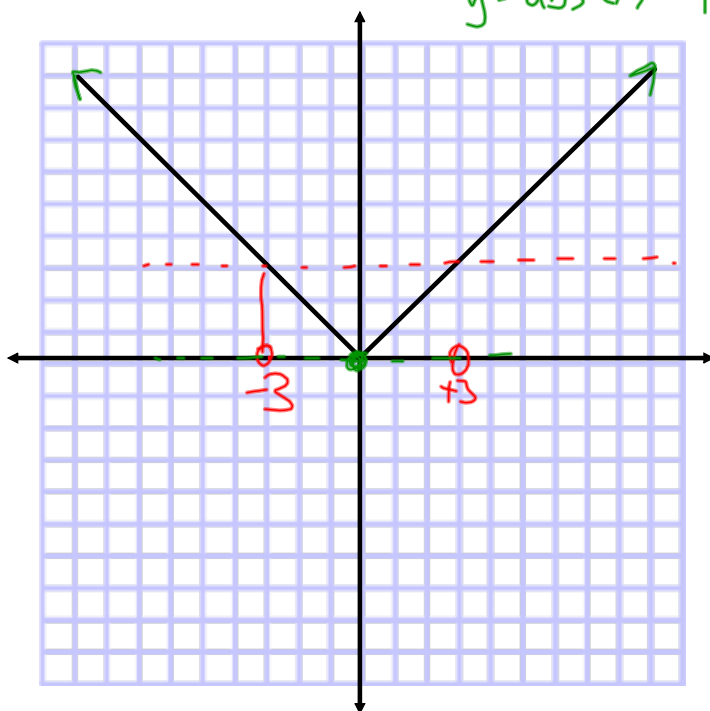
 $|x|$ $\text{abs}(x)$

isolate

create
two
equations0, 1, or 2
solutions!

Solving Absolute Value Equations

$$y = \text{abs}(x) = |x|$$

 $|x|$ $\text{abs}(x)$

isolate

create
two
equations0, 1, or 2
solutions!

Solving Absolute Value Equations

* Graph $y = \text{abs}(x - 3)$

$(3, 0)$

* Graph $y = \text{abs}(2x + 2)$

$(0, 2)$

 $|x|$ $\text{abs}(x)$

isolate

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solutions!

Solving Absolute Value Equations

Due: Wednesday, Feb 27, 2013**§ 1.8** - pp 67-68 / 19-39**Due: Monday, Feb 25, 2013****§ 1.8**- pp 67-68 / 1, 6-8

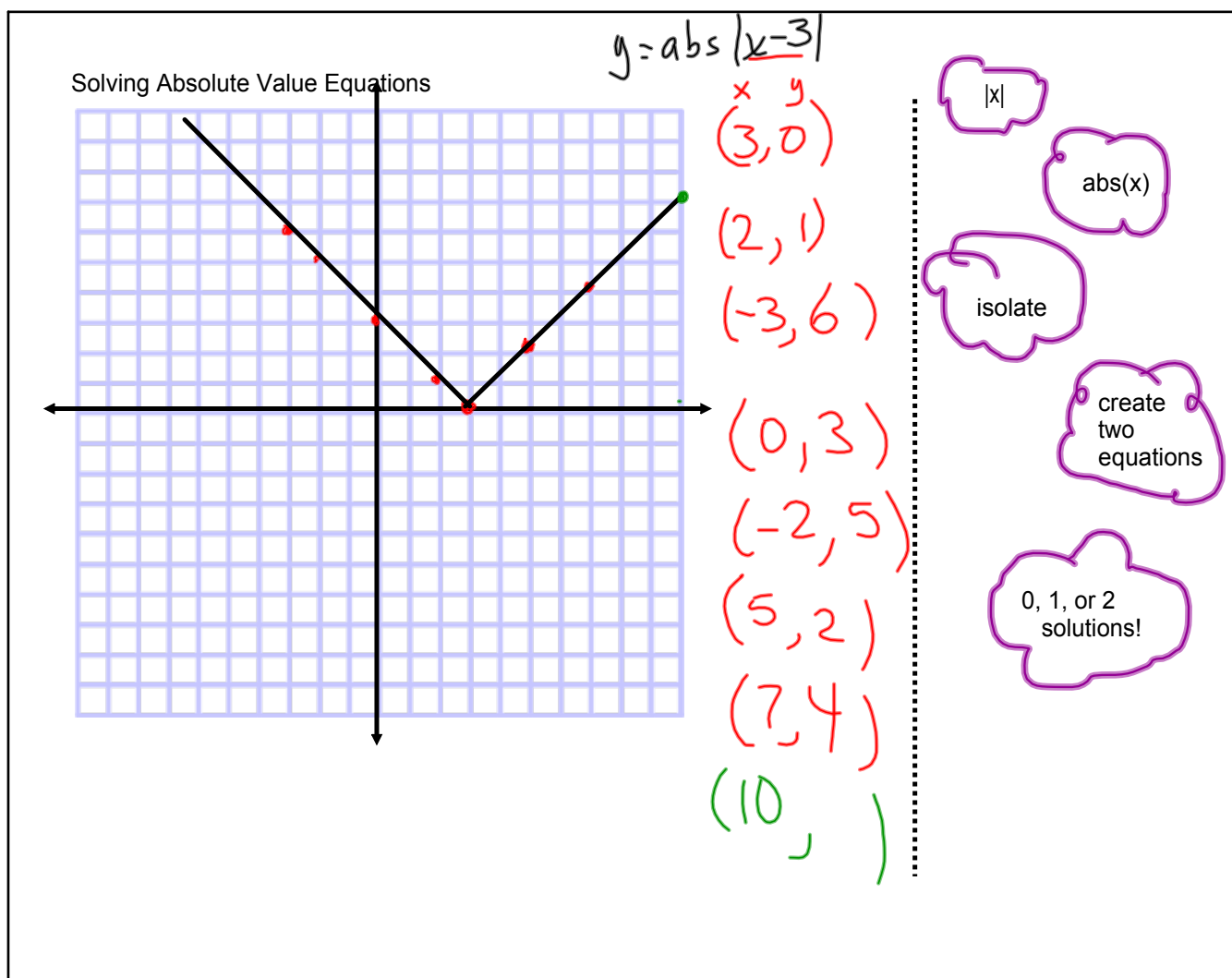
graph $y = \text{abs}(-2x + 2)$

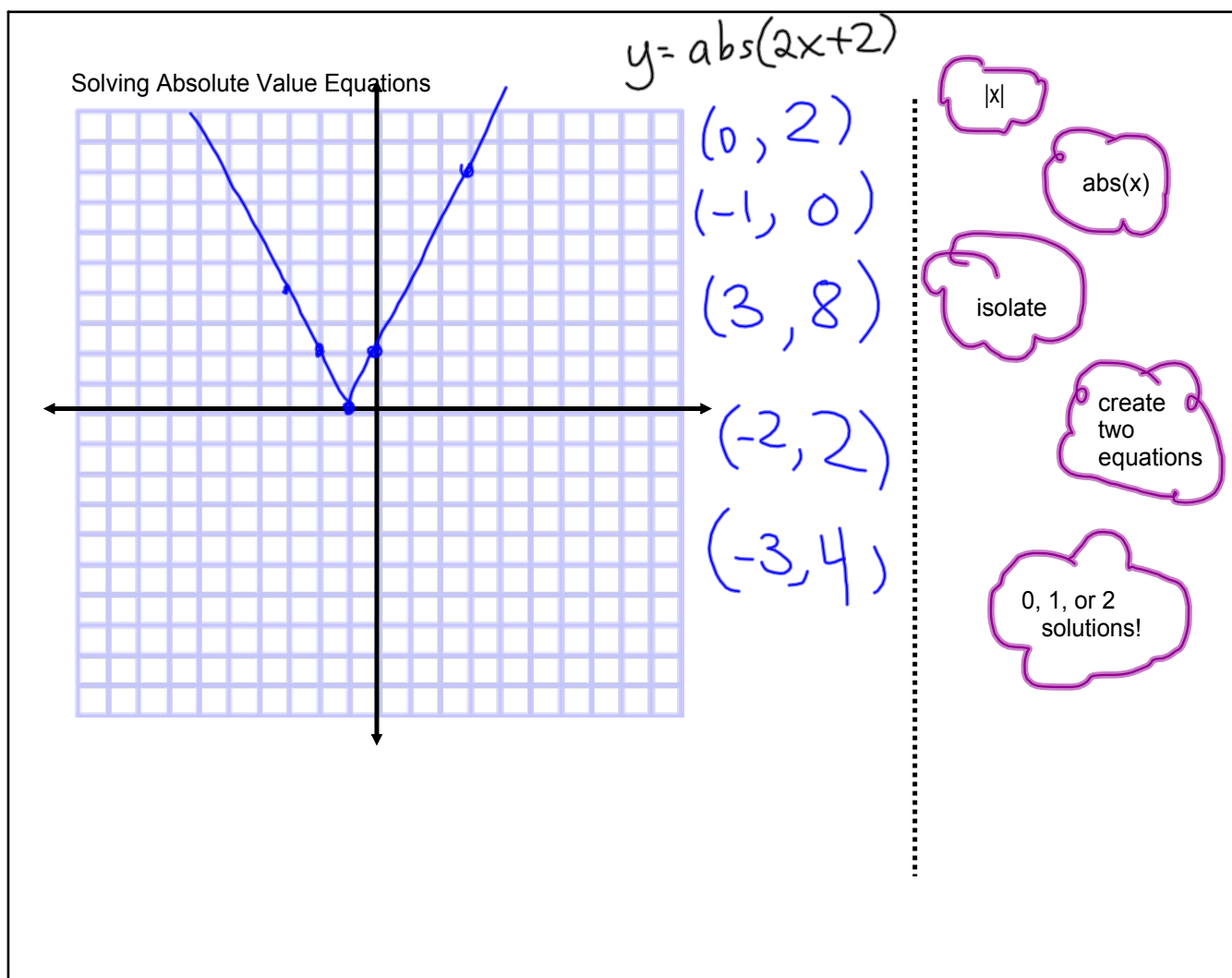
graph $y = \text{abs}(-2x) + 2$

 $|x|$ $\text{abs}(x)$

isolate

create
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Solving Absolute Value Equations

1.8/6 solve $|x-10|=4$

1) isolate
(get by itself)
the absolute
value

2) think about
2 answers

3) create
2 equations
(without absolute
value)

$$x-10=4$$

$$+10 \quad +10$$

$$x=14$$

$$x-10=-4$$

$$+10 \quad +10$$

$$x=6$$

$$|?|=4$$

$$4$$

$$-4$$

$$|?|=4$$

$$\text{can } ? = 5$$

$$\text{can } ? = 4 \quad \circ$$

$$\text{can } ? = 2$$

$$\text{can } ? = -4 \quad \circ$$

 $|x|$

abs(x)

isolate

create
two
equations0, 1, or 2
solutions!

Solving Absolute Value Equations

* Graph $y = \text{abs}(x)$

you can use your calculator to help -
 $\text{abs}(x) = \text{MATH} \Rightarrow (\text{NUM}) \Rightarrow 1$

$$y = |x - 3|$$

$$y = |2x + 2|$$

	x	y = x
(5,5)	5	5
(3,3)	3	3
(-2,2)	-2	2

|x|

abs(x)

isolate

create
two
equations

0, 1, or 2
solutions!

Solving Absolute Value Equations

1)

1) isolate
(get by itself)
the absolute
value

$|3x-5|+4=3$ has
No solutions

$$|3x-5|+4=3$$

-4 -4

$$\text{abs}(3x-5) = -1$$

$$\text{abs}(?) = -1$$

No solutions
because ^{value}
absolute can't be NEGATIVE

|x|

abs(x)

isolate

create
two
equations

0, 1, or 2
solutions!

2) think
about
solutions

3) create
2 equations
to give
good solutions

Solving Absolute Value Equations

(6)

$$|x-10|=4 \quad \left[\text{or } \text{abs}(x-10)=4 \right]$$

1) isolate
abs value2) think3) solve
2 equations

$$\begin{array}{l} x-10=4 \\ +10 \quad +10 \\ \hline x=14 \end{array}$$

$$\begin{array}{l} x-10=-4 \\ +10 \quad +10 \\ \hline x=6 \end{array}$$

$$x=6 \quad -4$$

$$|?|=4$$

$$4$$

 $|x|$ $\text{abs}(x)$

isolate

create
two
equations0, 1, or 2
solutions!

Solving Absolute Value Equations

 $|x|$ $\text{abs}(x)$

isolate

create
two
equations0, 1, or 2
solutions!